INTRODUCTION

In the domain of road safety, Vulnerable Road Users (VRUs) have not benefited from the decrease in fatalities experienced by other categories of road users. While fatalities of all other categories are decreasing, fatalities among Vulnerable Road Users are stable or even increasing. According to the CARE (Citizens Consular Assistance Regulation in Europe) database 2009, inside European urban areas, pedestrian fatalities represent more than 35% of all fatalities. There is a national and European societal imperative to address the safety of Vulnerable Road Users. Mobility and comfort in traffic using a VRU-centric ITS approach combined with communication with vehicles or infrastructure can contribute to this.

THE PROJECT VRUITS

The Project VRUITS (Improving the Safety and Mobility of Vulnerable Road Users through ITS Applications) investigates how the safety and mobility of pedestrians, cyclists, Powered-Two-Wheelers and elderly drivers can be improved with ITS applications. The research includes the improvement of the usability of different applications and the integration of VRUs in cooperative traffic systems. Selected applications will be demonstrated in the Netherlands (Helmond) and Spain (Valladolid).

Figure 1: A busy street crossing.

3rd NEWSLETTER

In this issue

Introduction 1
Key Outputs to date 2
VRUs categorization 2
Impact Assessment 3
Data for Impact assessment 4
Safety impact assessment methodology 5
Mobility & Comfort impact assessment methodology 6
Cost-benefit impact assessment methodology 8
General benefits and General costs 10
Usability assessment 11
VRUITS at the 10th ITS European Congress 13
2nd Interest group Workshop 13

AUGUST 2014

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 321586.
By placing Vulnerable Road Users (VRU) in the center, the VRUITS project assesses the impact of current and upcoming Intelligent Transport Systems (ITS) applications on VRUs’ safety and mobility, identifies how the usability and efficiency of ITS applications can be improved, and recommends which actions have to be taken at a policy level to further progress on those aspects. By applying a multi-disciplinary approach, the VRUITS project aims at developing tools to evaluate, field-test and subsequently improve ITS for vulnerable road users, by actively integrating the “human” element.

Recent activities in the project addressed the adaptation of impact assessment methodology, in order to carry out qualitative and quantitative assessment of ITS for sub-groups of VRUs with regards to the aspects of safety, mobility and comfort, and to translate these into socioeconomic indicators.

Moreover, user-acceptance and usability of existing ITS services for VRUs have been assessed, focusing on comfort, mobility and effectiveness of related information (i.e., the Human Machine Interface).

Finally, the Second Interest Group Workshop was held in Helsinki on the 16th of June 2014. Thanks to the expertise of the participants, from a large group of ITS previously assessed from a qualitative point of view, a set of the most promising applications was selected and for these also a quantitative assessment will be performed in the second half of the year.

The VRUITS project has also been presented during the 10th ITS European Congress in Helsinki.

**VRUs CATEGORIZATION**

The VRUITS project uses the following three criteria to distinguish vulnerable road users and to classify road-user groups:

1. The amount of external protection;
2. Task competency, i.e., people ability to function in risky situations;
3. Resilience (fragility), i.e., people ability to absorb outside forces.

Beside differentiating VRUs by mode of travel (i.e., pedestrian, cyclist, moped, and motorcycle), the categorization also relates on age (i.e., 7-12, 13-17, 18-64 and 65+), aiming at defining appropriate age groups with specific needs concerning their right to survive (safety), to move (mobility and comfort) and to take part in the society. For example, studies have discovered that children under 12 have difficulty estimating the direction, speed, and distance of vehicles in motion because of their inability to understand the connection between time, speed, and distance.

On the other hand, for the elderly older than 64 years, physical and cognitive resources decline with age, till playing an important role in traffic around the age of 75.

Vehicle drivers are excluded.
In the VRUITS project a series of specific impacts assessment is performed, each of them dedicated to a particular aspect, such as safety, mobility, comfort and cost-benefit.

At first, a qualitatively evaluation is carried out on large set of ITS; later, a quantitative assessment is performed on a smaller and more defined group of applications. All impact types need information on the deployment scenario, such as the functionality, penetration rate, and any technical performance limits of the ITS, and on the traveler behavior, which includes aspects like user acceptance, trust, usability, interaction with the ITS, changes in travel choices and performance. Of course, additional data may be needed by specific impact types.

Types of impact may influence each other, through relations possibly complex to quantify. For example:

- safety influences perception of safety, which is an aspect of comfort;
- a change in the number of accidents may affect mobility, since accidents often cause congestion;
- the comfort level may influence safety, via modification of workload and mobility, or by affecting the amount of travel overall or the attractiveness of certain modes, routes, etc.

Moreover, it is clear that there is some overlap between mobility and comfort. Therefore, these two aspects cannot be totally distinguished in theory, but will be separated in the following development to be able to better assess them.

The evolution of a generic impact assessment method in relation to VRUs is quite limited, since methods found in literature consider the VRU merely as a collision object, not as a subject with own behavior. Indeed, in the VRUITS project, for each of the considered aspects, suitable impact assessment methods have been modified, in order to be adapted to the specific needs when evaluating VRUs dedicated ITS.

The assessment builds on the critical scenarios identified in a previous task of the project.

In the next phase of VRUITS project, methods described in the following sections of this newsletter will be implemented.
DATA FOR IMPACT ASSESSMENTS

With regards to the data to be used for the safety impact assessment, VRUITS aims to further extend the accident data previously collected by the TRACE project and already exploited by the eIMPACT project, in order to cover EU28. In the above mentioned projects, the EU25 countries were divided into three clusters, based on the prevalent safety situation in each country (i.e., the countries with similar road safety situation were included in the same cluster). In VRUITS these groups will be updated by using the latest road and VRUs safety related statistics.

Another project’s objective is to improve the vehicle stock information, in order to give estimates for vehicle fleets.

Insight into the overall effectiveness of new ITS solutions in terms of safety is often difficult to reach, mainly because the implemented ITS solutions are so new that, since their installation, not enough time has elapsed to show an effect. In fact, accidents are comparatively rare events and data collection may have to be conducted over a period of many months or years in order to capture relevant data revealing the general system effectiveness.

In other cases, the data collection protocols are simply not adequate to provide material at a level that is sufficient to produce an informed analysis.

The same issues affect the availability of valiant data also for the mobility and comfort assessment. In fact, readiness of mobility and especially comfort data is very scarce, maybe not existing at all. For example, actual travel surveys tend to particularly underrepresent the travel made on foot.

---

**Approach for selecting ITS applications and assessment**

1. **Critical scenarios**
   - Group discussions
2. **User needs**
   - Questionnaires
3. **ITS applications inventory**
   - First Interest Group Workshop

**Qualitative assessment of selected ITS applications**

**ITS applications prioritization**

**Implementation scenarios**

**Quantitative safety & comfort assessment**

**Cost benefit assessment**

---

Figure 3: VRUITS approach for selecting ITS applications and assessment
In order to assess ITS impact on VRUs safety, after literature review and methods comparison, the VRUITS Consortium considered ex-ante assessment methods as more appropriate and decided to exploit the safety mechanism method. Techniques like accident reconstruction can optionally be used to derive estimates for one or more safety mechanisms.

The safety impact assessment method used in VRUITS follows the steps and applies the tool reported by Kulmala (2010), according to which traffic safety consists of three dimensions: exposure, risk of a collision to take place during a trip, and consequences (i.e., risk of a collision to result in injuries or death). Indeed, the implemented safety measures may influence safety by affecting one or more of them.

The use of this approach ascertains that all dimensions of road safety, including exposure or the amount of travelling, as well as all possible impacts, both positive and negative, and systems’ direct/indirect/unintended effects will be covered.

The proposed method utilizes a set of nine mechanisms through which ITS can effect road users behavior and, thereby, road safety.

1. **Direct in-car modification of driving task**
2. **Direct influence by roadside systems**
3. **Indirect modification of user behavior**
4. **Indirect modification of non-user behavior**
5. **Modification of interaction between users and non-user**
6. **Modification of road user exposure**
7. **Modification of modal choice**
8. **Modification of route choice**
9. **Modification of accident consequences**

Per each studied ITS, the starting point for the impact analysis is the system descriptions, in order to present its purpose, the anticipated driver reactions and the expected safety benefits, the safety issues addressed, the type of consequences the system aims to mitigate and the circumstances in which it can/can’t work. Afterwards, the relevant safety mechanism are selected. In this phase, the description of expected changes in driver behavior together with the estimation of numerical percentage value for the change in fatalities and injuries will be done for each mechanism. These numerical safety impacts estimates are motivated by already available empirical evidence of systems with partly similar functionalities, expert evaluations collected via surveys, and indirect evidences.

At the end of this qualitative assessment, systems are prioritized, to further proceed with a quantitative evaluation.

The results of qualitative assessment are provided in terms of the number of avoided injury accidents, injuries and fatalities if sufficient statistical data is available concerning the accident types that the ITS aims to prevent. Otherwise the results are based on a more qualitative assessment of the safety effects made by experts as part of 5 step expert judgement process.
The goal with the development of a general methodology for assessing mobility is to take into account, per each different VRU group, influencing objective and subjective factors, both internal (individual) and external (environment). On the other hand, with regards to comfort, the scope is to evaluate the Micro level – Quality levels (i.e., external factors such as the environment) and Macro level – Service levels (i.e., internals aspects in relation to the external ones) and to integrate them.

Literature review has identified different methodologies to understand the mobility and comfort of VRU groups, but the available methodologies tend to overlap the two different aspects and they are often not so specific when analyzing VRU groups.

Methods based on ex-post analysis of mobility and comfort in the case of ITS for VRU does not exist at all; therefore, ex-ante assessment methods are basically the only available starting point, even if long term effects are difficult to predict and expert judgment is of limited scientific quality.

For all these reasons, it has been deemed suitable to use guidelines that already exist for the evaluation of ITS projects and to apply a method previously developed and tested in another area, such as safety, and to further specify them.

As far as the methodology, the VRUITS project decided to exploit the one previously used in the eIMPACT Project and to integrate it with the expert judgment process, in order to enhance the value of the assessment. Of course, it will focus on VRUs. On its basis there is the TeleFOT Project mobility and comfort model, depicted in Figure XX (15 a pagina 72), which exalts the differences between mobility and comfort.

Based on the diverse aspects described in the TeleFOT model above, research questions and hypotheses are generated in a bottom-up approach in relation to each specific ITS, to potentially cover all aspects relevant for mobility, comfort and compliance. Considered factors are: functional description of the system, its design, the context of use, and the type of impact on the different user and non-user per each assessment scenario. The list of general hypotheses is then divided into two groups of indicators: mobility and comfort.

A third type of indicators is also included in the list: compliance. It represents a wider term describing the relation between the user, the infrastructure, and the ITS.

After the description of the purposes of each system, both positive and negative, the procedure for assessing comfort and mobility follows the same order as the one for the safety assessment, altered to evaluate these aspects and to address vulnerable road users.
In the nMOBext step, a main classifying variable, called basic variable, is chosen for each system (e.g., link or intersection, road type, weather, etc.). The basic variable is used to weight the estimate when applying on available data. The impact estimates are based on an assumption of 100% penetration, meaning that the studied systems are fully installed in the studied transport system. The effect estimates are applied to selected target years by using the estimated mobility rates.

In general, a linear development of the effects for different penetrations is assumed.

In conclusion, the main modifications of the method for the purposes of VRUITS project are:

1. five mechanisms have been updated to cover VRUs and to assess their mobility and comfort;
2. circumstances like age, road layout and lighting are considered in more detail when relevant for VRU and when feasible;
3. the expert judgment process will be used to enhance the value of estimates for the five mechanisms.

In the figure below the mobility and comfort assessment model is depicted.

**Comfort improves:**
- as the willingness to travel in adverse conditions increases (e.g., darkness or bad weather), or when the road user are more informed about adverse conditions;
- as quality improves in terms of less stress and uncertainty or a better feeling of safety in relation to traffic.

**Mobility improves:**
- if road users can make a journey following their own preferences (e.g. with efficient speed and route choice);
- as the number of journeys increases;
- as the length of journeys, measured in distance or duration, decreases, thus personal efficiency augments;
- thanks to any change in used modes (e.g., if it is predicted that the road users will travel more often or less as vulnerable road user);
- or deteriorates because of route choice based on user preferences (e.g., a shorter/longer or faster/slower route.). It can be assumed that if the user is voluntarily changing route, he/she will better evaluate the new one;
- as management of time budget for travelling improves (e.g. as departure time of commuting is shifted later).
COST-BENEFIT IMPACT ASSESSMENT

In order to reach a conclusion regarding the desirability of a project, all positive and negative welfare aspects must be expressed in terms of a common unit. The most convenient common unit is money. This means that in a CBA all welfare effects of a project should be measured in terms of their equivalent money value.

**Safety as cost-benefit:**

The translation of safety into cost-benefits terms can be established using unit-cost rates based on literature and including detailed information regarding the types of vehicles involved in the accidents, as well as the number of fatalities or injuries by type of VRU. In addition, the following assumptions have been made:

- All human lives (per se) are valued the same;
- Difference in expected productivity output for different age groups;
- Same productivity output for different VRU groups of same age;
- Productivity taken as a proxy for all inhabitants of a country;
- Proper accounting of underreporting of accidents;
- Accidents with different VRU types (e.g., pedestrians, cyclists and PTW) induce different property damage according to their severity.

**Mobility as cost-benefit:**

With regards to mobility, the introduction of ITS applications falls back on VRUs by lowering their perception of generic transport cost. They also modify VRUs participation in traffic and in accident generation, which both have effect on traffic congestion levels and impact on other road users. Improvement in VRUs’ transport efficiency is achieved by better route choices (i.e., resulting in less km travelled, thus lower transport costs in terms of time and money) or a higher average speed (also resulting in changed transport costs).

The effect on VRU mobility will be measured though the Value of Travel Time Savings (VTTS) indicator. VTTS will be closely linked to the average wage in each country and to trip purpose, adopting the previous HEATCO project values (IER, 2006), properly adjusted for inflation and extrapolated to 2020.

Being VTT heavily depending on the purpose of the trip as well as the age and income of the road user, its estimate for non-motorized modes is quite challenging. In the VRUITS CBA methodology, for example, the VTTS for cyclists will be accounted as equal to the VTTS of short trips for bus users, as previous researches have shown feasible.

The welfare benefit (e.g., travel time savings plus transport cost savings) for new users or for new trips made by existing users will be assessed by utilizing the “rule of half”, thus considered to contribute to VRU welfare by half the rate than that of existing users/trips.

Transport cost benefits beyond time savings, as well as positive and negative indirect impacts on other users such as effects on accident-caused congestion levels, would be calculated.

More in general, for the translation of mobility into cost-benefits terms, the following assumptions have been made:

- Travel time value is the same for all road users with the same trip purpose;
- All accidents of same severity, time of the day, type of road and country produce equal congestion.
Comfort as cost-benefit:

Finally, assessment and monetization of comfort benefits for VRUs is a task that no research has dealt with before. This is one of the points that the VRUITS methodology intends to go beyond the state of the art and it will be conducted by connecting comfort level with value of time. For example, it is easy to comprehend that increased comfort levels decrease the perception of transport generalized costs (i.e. if the journey becomes more pleasant it is more probable to make a longer trip). The perceived comfort benefit of each VRU group is assessed by establishing their willingness to pay.

Although the primary focus of the VRUITS methodology is to assess the impacts of ITS applications on road users, and specifically for VRUs, a (limited) estimation of the potential environmental benefits of these applications must be performed. It will focus on the impacts on CO2 emissions due both to a change in the overall modal shift and the passenger-km ratio carried out per mode. The type of vehicle, place and type of road will be used for a calculation of carbon dioxide emissions, thus for the environmental benefits’ monetization. The starting point are data elaborated by the European Environmental Agency (EEA) in 2001, further extrapolated to 2020 (e.g., 40 €/ton of CO2). These emission factors are then multiplied with the change in the total travelled distance (in km) calculated for each mode.

Other environmental benefits, such as other type of emissions or variations in noise levels, are omitted.

The CO2 emissions from cycling and walking are considered to be zero. Also with car transport, the lifecycle-emissions are not taken into consideration.

Finally, the VRUITS CBA methodology mainly innovates the following points:

1. The VRU-centric approach for assessing VRU-relevant ITS applications is defined as all relevant monetization parameters (i.e., value of life, value of tie etc.), distinguished for different VRU users wherever possible;
2. Monetization of comfort impacts for VRU users by introducing comfort assessment in a CBA exercise;
3. The breakdown of the impact of ITS applications is quite sophisticated, including the cost of congestion saved by accident prevention, but furthermore, the monetization of the safety impacts accounts also for property damage.
4. This exercise is based on the HEATCO FP6 research, except from updating the factors and expanding from an EU-25 to an EU-28 coverage.

In order to be able to perform a CBA, data on impacts/effects are needed from each project task.

![Figure 6: Simple scheme of ITS for VRUs general benefits](image-url)
GENERAL BENEFITS

The traffic effect of each ITS service have to be established by comparing the Business as Usual (BAU) scenario with the scenario in which we assume the new ITS service is implemented.

General benefits can be downsized by the “new” traffic which could arise. In fact, it is possible that VRUs not travelling in the BAU scenario decide to make a trip if the new ITS service is introduced. This would mean more traffic and possibly an increase in accidents.

Another second order effect can be a change in transport modalities due to increased safety and reliability of certain transport systems. This can also result in a change in the number of kilometers travelled per transport mode, thereby varying transport and environmental costs.

Indeed, in the determination of the effects, the ones for the current users must be separated from the ones for new and ‘shifting’ users, even if marginal.

GENERAL COSTS

Within a CBA, costs must be evaluated, too. The costs of the ITS services comprise: investment costs, installation costs, and yearly operating and maintenance costs. These costs have to be known with and without VAT, since the latter is only a shifting of money between the private and public sector. If investment costs decrease in the future due to economies of scale in production, its evolutions during the CBA time horizon must be determined.

Some ITS services also require installation processes, resulting in installation costs. These additional costs, whether paid by the public or private sector, also have to be taken into account and need to be known with and without VAT. The same must be done also for operating and maintenance costs. Moreover, if the device has to be replaced during the time horizon of the CBA, replacement costs should also be comprised.

On the other hand, overall project costs do not have to take into account inflation effects.
USABILITY ASSESSMENT OF SELECTED APPLICATIONS

Task 4.1 objectives were to perform an assessment of user-acceptance and to evaluate the usability of existing ITS services for VRUs, in order to identify the need for improvement in dedicated safety services. For the evaluation of effectiveness and friendliness (i.e., Usability) of the Human Machine Interface (HMI) well consolidated methods and techniques, derived from the literature, are implemented in relation to Human Centered Design principles.

The usability assessment has been performed on a reduced set of ITS. The selection process started from a total of 144 systems; during the First Interest Group Workshop, they were narrowed down to 22 systems with the highest potential for VRU safety, mobility and comfort. Among these, 14 systems were selected as being potentially relevant for the usability assessment on the base of the following four aspects: systems whose links provide valuable information on the interface, systems for which a link to on-going or finished projects has been established, systems to be tested in the project pilots, and systems for which further resources are provided, and/or more creative initiatives are required in order to get the required information on the HMI.

A further reduction to 8 applications, for which sufficient descriptions as well as pictures and movies could be gathered, was implemented. In fact, since the interviews were not able to actually use the systems, supporting materials that allowed comprehensive insight into the functions of the applications needed to be provided.

Finally, 4 systems, one per type of road user, were chosen via rankings elaborated by the Consortium partners.

The usability assessment, together with the provision of supporting material, mainly consisted in a questionnaire, sent via e-mail and composed of 5 scales:

**Scale 1**
ITS Usability Index. Developed upon classic referenced usability topics, nine usability properties (sub-scales) were targeted: system explicitness, functionality, consistency, compatibility, human error potential, flexibility, user control, system monitoring, and informative feedback;

**Scale 2**
ITS Risk Avoidance (perception of risk avoidance capability by the ITS system);

**Scale 3**
Trust (degree of reliance, confidence and perception of credibility in ITS performance and use)

**Scale 4**
Safety improvement (perception of expected safety enhancement by using the system)

**Scale 5**
Risk Communication (evaluation of human-ITS communication proficiency).

The survey also gathered interviews background information (e.g., age, gender, knowledge with the use of ITS, frequency of use of ITS, etc.) in order to enable a more refined analysis.

The data was collected over a 2 months period. Average Age Participants was M=48.4 and gender composition equally distributed. Nationality sampling spread over 11 different countries, UK, IT and NL having the highest response. Most present job roles appear to be civil servants researchers, managerial roles, engineers and employees.
For results elaborations, the use of ANOVA or MANOVA was chosen as one of the most common univariate and multivariate parametric tests (in behavioral research) both to test sample differences in the measured dependent variables (e.g., usability index) over the levels of the independent variables chosen (e.g., expertise levels), effect sizes, as well as variable associations and to substantially increase statistical power of the analysis. It was also chosen to apply Bonferroni tests when executing further tests.

**Analysis Results:**

The overall sample of respondents revealed:

- A moderate/good knowledge of each ITS system;
- An approximated weekly use of the ITS systems;
- Car was the most common means of transport, followed by bicycle and finally the use of a motorcycle;
- All ITS systems obtained usability ratings at least above 3 (neutral), suggesting a positive (moderate) overall usability level;
- (ITS) Explicitness, Functionality and User Control facets were rated the best usability elements of the various ITS systems;
- The lowest rated usability features (across all ITS systems) were System Monitoring, Flexibility and Consistency;
- System Monitoring does not reveal a robust usability feature on any system. No system is designed to provide a supervisory control on human action. Systems do not seem to “know” what users are doing at all times, that is environmental complexity and human models are less embedded in their functions;
- Perception of risk avoidance (given by the ITS system) and Communication of Risk (situations) were rated the best usability properties of the various ITS systems. Providing feed-forward information about incoming hazardous situations and getting a feeling of risk avoidance are the best properties among all ITS systems;
- In general it appears that trust on the various systems, that is, relying on such systems, has to be improved.
- Safety is not perceived as directly improvable by using the ITS systems only. Perhaps more integration between ITS systems and the road-VRUs system coupling is required to be studied not only from a technological perspective but also from more of a cultural and sociotechnical point of view;
- Usability was rated to be slightly better by the youngest;
- No significant difference by age levels over the Trust sub-scale was revealed;
- ITS system 3 and 4 were rated slightly better in usability than ITS system 1 and 2;
- Experts in the sample did not differentiated across any of the four Usability scales significantly except for a minimal difference in ratings on the Risk Avoidance scale with the group of moderate experts;
- These final findings seem to suggest that the overall sample of VRUITS respondent is more than representative and make valid ratings and assessments in terms of usability elements for ITS systems.

**FOR MORE INFORMATION**

If you would like to read more detailed information on the topics of this newsletter, please download VRUITS Deliverable D 2.2 and D 4.1, available on the project website (www.vruits.eu)
The VRUITS project was also present at the 10th ITS European Congress (16-19 June 2014, Helsinki). The VRUITS project had a stand within the European Commission booth in the Exhibition area, where a presentation with the first results of the project was shown. During the conference there were 2 presentations on the project.

The different aspects of VRU safety were also discussed in the special session “ITS for improving VRU safety”, organised by the VRUITS project and the iMobility VRU WG, with representatives from research organisations, automotive industry, PTW industry and PTW users. VRU safety is a complex matter due to the large variation within VRUs and their characteristics and the large number of possible accident scenarios. Technology, especially cooperative communications, offers possibilities to improve the visibility of VRUs, but further work is needed to improve sensor performance and reliability in all environmental conditions. Acceptance of the technology by the users and the cost of the technology are critical for success of the technology.

The Second VRUITS Interest Group Workshop was held in Helsinki on 16 June 2014, at Ravintola Limone, near to the Helsinki Conference & Exhibition Centre, where the ITS Europe Conference took place.

At the workshop, the results of the qualitative safety and mobility & comfort assessment were presented, and 10 applications were withheld for further quantitative assessment. The experts at the workshop assessed the systems. Based on the assessments of the experts, and assuring coverage of all VRU groups as well as inclusion the applications to be demonstrated at the pilots. The set of applications selected for quantitative assessment is:

1. Blind Spot Detection
2. Intelligent Pedestrian Traffic Signal
3. Intersection Safety
4. Pedestrian Detection System + Emergency Braking
5. VRU Beacon System
6. PTW Oncoming Vehicle Information System
7. Bicycle to Car communication
8. Information on Vacancy on Bicycle Racks
9. Crossing Adaptive Lighting
10. Green Wave for Cyclists

The posters with the results of the qualitative assessment are available on the VRUITS website.
How to Participate in VRUITS

The VRUITS project is always looking for feedback from experts in the VRU and ITS fields on key topics such as impact of ITS applications and ITS implementation issues.

Are you interested in giving your contribution to the VRUITS project? Would you like to answer to further questionnaire prepared by the Consortium? What about participating to upcoming VRUITS Workshops?

If you desire to be included in our list of experts, please send us your credentials to the following e-mail addresses:

- Project Coordinator: johan.scholliers@vtt.fi
- Dissemination Manager: vruits@kitesolutions.it

You will receive invitations to future meetings and we will consider your name for late surveys.

Figure 7: the VRUITS Consortium
CONSORTIUM

Visit www.vruits.eu

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 321586.

Project Coordinator:
Johan Scholliers
VTT Technical Research Centre of Finland
P.O. Box 1300, 33101 Tampere, Finland
Tel: 358 40 5370204
Johan.scholliers@vtt.fi

Dissemination Manager:
Mirella Cassani
KITE Solutions, Via Labiena 93
21014 Laveno (VA), Italy
Tel: +39 0332 626910
vruits@kitesolutions.it